

REMARKS

STATUS OF CLAIMS

Prior to the claim amendments above, Claims 47, 64, 77, and 90 were pending. Claims 1-39, 48-63, 65-76, 78-79, and 91-95 were previously cancelled. The following reflect changes to the claims as a result of the claim amendments given above.

Claims 47, 64, 77, and 90 have been cancelled.

Claims 96-141 have been added.

No claims have been amended or withdrawn.

Claims 96-141 are currently pending in the application.

INFORMATION DISCLOSURE STATEMENTS

The Office Action acknowledges that the Information Disclosure Statement (IDS) mailed by the Applicant on February 15, 2006 and which the Office received on February 17, 2006 (per the returned postcard) was not considered. This is consistent with the Applicant having checked the box next to "37 C.F.R. §1.97(i)" on page 3 of the IDS, following which is an explanation that the Applicant acknowledges that the Examiner need not consider the IDS.

However, since prosecution of the present Application has been reopened and a new Office Action issued, the Applicant has resubmitted the IDS on April 21, 2006, for which the postcard returned by the Office is stamped with a received date of April 27, 2006. The resubmitted IDS was submitted under 37 C.F.R. §1.97(c), and a check for the fee of \$180.00 due per 37 C.F.R. §1.17(p) was included with the IDS.

Therefore, the Applicant respectfully submits that the resubmitted IDS can be considered by the Examiner, and the Applicant respectfully requests that a copy of the associated Form 1449 with the Examiner's initials, signature, and date signifying that the IDS has been considered be returned to the Applicant with the next communication from the Office.

SUMMARY OF THE REJECTIONS

Claims 46, 64, 77, and 90 have been rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent Number 6,163,779 issued to Mantha et al. (" *Mantha* ") in view of the reference titled "Embedded Inodes and Explicit Grouping: Exploiting Disk Bandwidth

for Small Files” (1997) of Ganger et al. (" *Ganger* ") and in further view of the reference titled “Running Microsoft Windows 98” of Stinson (" *Stinson* "). The rejections are respectfully traversed.

SUPPORT FOR NEWLY ADDED CLAIMS

Claims 96-141 are fully supported by the Application as originally filed, and no new matter is included. For example, Claims 96, 110, 124, and 138 each feature steps relating to a server that receives client requests, obtaining Web objects in response to the requests, and sending the Web objects to the client devices, such as illustrated in FIG. 1 and FIG. 4 of the Application and described in at least the following portions of the Application: page 2, line 9 – page 3, line 22; page 7, line 4 – page 8, line 16; and page 9, line 17 – page 11, line 23.

In addition, Claims 96, 110, 124, and 138 each feature “the server causing the first Web object to be stored as a first file in a first location on the storage device” and “the server causing the second Web object to be stored as a second file in a second location on the storage device, wherein the second location is selected to be co-located with respect to the first location in response to identifying that the second Web object is embedded within the first Web object.” These features of Claims 96, 110, 124, and 138 are supported by at least FIG. 4 of the Application and are described in at least the following portions of the Application: page 6, lines 5-19; page 8, line 16 – page 9, line 2; page 9, line 23 – page 11, line 2; page 11, lines 13 – 23; and page 12, lines 7 – 17.

Also, Claims 96, 110, 124, and 138 each feature “the server obtaining the first Web object by causing the first file to be read from the storage device in a first read operation” and “the server obtaining the second Web object by causing the second file to be read from the storage device in a second read operation.” These features of Claims 96, 110, 124, and 138 are described in at least the following portion of the Application: page 12, lines 7-17. In particular, this section of the Application explains that during the retrieval process, the seek time is reduced because the disk head of the storage device does not have to move from one cylinder to another to retrieve a series of Web objects, because by having written the Web objects to disk in co-located positions, such as within the same cylinder, the disk head is already positioned for that cylinder for reading the second Web object after reading the first Web object in that same cylinder. Thus, as described in that portion of the Application, the

storing of the Web objects in co-located positions means that substantially sequential data retrieval is possible, such as when there are two Web objects stored as two files in co-located positions and separate read operations are used to sequentially read those two files.

Claims 97, 111, and 125 each feature different relationships in which the two locations where two files are stored are related, and these features are supported by at least the following portion of the Application: page 11, lines 5-12.

Claims 98, 112, and 126 each feature that the server includes the storage device, such as depicted in FIG. 1 and FIG. 2 of the Application and described in the corresponding portions of the specification, and that the server is one of the following: (a) a Web caching server; (b) a Web caching proxy; (both of which are depicted as Web caching proxy 18 in FIG. 1 and FIG. 2 and described in the corresponding portions of the specification describing Web caching proxy 18 along with page 3, lines 14-15); (c) a Web content server, as described in the Application on page 2, lines 16-17 and page 3, lines 7-8; or (d) a Web origin server, as described in the Application at page 12, lines 25-27.

Claims 99-102, 113-116, and 127-130 each feature examples of the first and second Web objects and the relationship between the two (e.g., Web pages, Web page components, embedded files, embedded hyper-links, etc.), which are supported by at least the following portion of the Application: page 8, line 22 – page 9, line 2

Also, Claims 102, 116, and 130 each feature identifying a third Web page that is embedded in the second Web page, which is supported by at least the following portion of the Application: page 10, lines 11-19.

Claims 103-105, 117-119, 131-133, and 139-141 each feature storing the two Web objects in temporary locations and then moving the Web objects to storage locations, in which the temporary locations are included either within a memory or on the storage device. These features of Claims 103-105, 117-119, 131-133, and 139-141 are supported by at least the portion of the Application describing the “continuous” and “batch” modes of operation, in which memory is used in the former and the storage device is used in the latter, as described at: page 9, line 23 – page 11, line 2.

Claims 106-109, 120-123, and 134-137 each feature a criterion that is satisfied so that the two Web objects are stored in the two locations, such as when the second Web object is the only Web object embedded within the first Web object, that a portion of memory is full,

and that the Web caching server is processing a number of requests that is below a specified value. These features of Claims 106-109, 120-123, and 134-137 are supported by at least the portions of the Application describing that the Web objects are written to co-located positions when all embedded objects are downloaded or the memory space allocated to the holding area is full (as in continuous mode) or when the server is responding to fewer requests (as in batch mode), which are described at: page 10, lines 3-10; and page 10, line 20 – page 11, line 2.

RESPONSE TO THE REJECTIONS

A. CLAIM 96

(1) INTRODUCTION TO CLAIM 96

Among the features of Claim 96 are the following: “the server causing the first Web object to be stored as a first file in a first location on the storage device” and “the server causing the second Web object to be stored as a second file in a second location on the storage device, wherein the second location is selected to be co-located with respect to the first location in response to identifying that the second Web object is embedded within the first Web object.” Thus, the two Web objects are written to co-located positions on the storage device as a result of the second Web object being embedded within the first Web object.

Claim 96 also features the following in response to the second request: “the server obtaining the first Web object by causing the first file to be read from the storage device in a first read operation” and “the server obtaining the second Web object by causing the second file to be read from the storage device in a second read operation.” Thus, when the same Web objects are requested, each of the Web objects is obtained by reading the corresponding files from the storage device in separate read operations.

Note that in the approach of Claim 96, the two Web objects are effectively “cached” as described in the Application, such as at Web caching proxy 18, that the two Web objects are “related” by virtue of one being embedded in the other, and that both Web objects are stored as files in co-located positions on the storage device, such as in the same cylinder. As a result, when those Web objects are later retrieved, the disk head reads the first file for the first object in one read operation, and then the disk head reads the second file for the second object in another read operation. Because the two files were written to co-located positions, the disk head need not be repositioned between the two read operations if the co-located positions are

within the same cylinder (or repositioned only a small amount if the co-located positions are within different but adjacent or closely spaced cylinders), thereby improving the seek time when reading the second Web object after reading the first Web object. Note that the two Web objects are stored as they normally would be as separate files on disk and are read as separate files from the disk when retrieved later in response to another request.

(2) INTRODUCTORY DISCUSSION OF *MANTHA* AND *GANGER*

In contrast to the approach of Claim 96, *Mantha* discloses an approach for saving a Web page to a local hard drive to enable client-side browsing. (*Mantha*, Title.) In particular, *Mantha*'s technique is to copy a base HTML document to the local storage device, establishing a pointer to that base HTML document, and also saving on the local storage device any embedded objects within the base HTML document, thereby resulting in a new HTML page on the local hard drive such that when the user desires to retrieve the copied page, the link to the base HTML document is activated, resulting in the page being retrieved from the local hard drive instead of being retrieved from the server for the original source of the Web page. (*Mantha*, Abstract.)

Note that in *Mantha*'s approach, there is nothing about storing the embedded objects of the Web page in co-located positions on the local hard drive. Also note that in *Mantha*'s approach, the locally stored Web page is only retrievable by the client device with the local hard drive, as opposed to the Web page being retrievable by another client.

Also in contrast to the approach of Claim 96, *Ganger* discloses an approach for a technique called "explicit grouping" (along with another technique called "embedded inodes"). (*Ganger*, Abstract.) In particular, the explicit group technique involves improving disk access performance for small files by accessing groups of small files as a group even if only a fraction of the small files are needed because of the relatively low cost of accessing more data than needed as compared to the high cost of the seek times if accessing the small files separately. (*Ganger*, page 2, Col. 1, lines 44-52.)

In *Ganger*'s approach, *the entire group* of small files is written to disk and read from disk *as a unit at once rather than individually*. (*Ganger*, Section 3.2 "Grouping Small Files," page 10, lines 25-28.) Thus, the group of small files is treated as if it is one larger file because the inode is augmented to include two additional fields identifying the start and end of the

group, thereby allowing identification of the group when a member of the group is to be written or read from disk. (*Ganger*, Section 3.2 “Grouping Small Files,” page 10, lines 29-30.)

Note that in *Ganger’s* approach, each group of small files is treated as if it were one larger file for disk I/O, and thus a single write operation is used to write each group of small files and a single read operation is used to reach each group of small files, even if only a fraction of the small files are required. Also note that in *Ganger’s* approach, the group of small files is only used by one device as opposed to the small files being stored and retrieved in response to requests from other devices.

(3) THE OFFICE ACTION’S REJECTIONS BASED ON *MANTHA* AND *GANGER*

Per MPEP §2143.01, if a proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. However, as explained below, the Applicant respectfully submits that modifying *Mantha* with *Ganger*, or conversely modifying *Ganger* with *Mantha*, would both result in changing the principle of operation of the prior art invention that is being modified. In addition, even if *Mantha* were modified by *Ganger* or vice versa, the resulting combination would still fail to disclose all of the features of Claim 96.

The Office Action’s rejections are based on *Mantha* disclosing the storage of a base HTML document and embedded objects on a local storage device for later retrieval based on a pointer to the base HTML document, while *Ganger* discloses that small files can be written and read from disk as a group, thereby discloses that the individual small files within a group are stored in co-located positions. However, *Ganger’s* technique is limited to treating the small files stored together being written to and read from the disk as a group (e.g., as a single unite and not individually).

Therefore, if *Mantha’s* technique for locally storing Web content is modified with *Ganger’s* technique, *Mantha* would need to modify the normal retrieval of the locally stored Web content to retrieve both the base HTML document and the objects embedded within that base HTML document as a group instead of first retrieving the base HTML document and then retrieving the embedded objects within the base HTML document. This would change the principle of operation for *Mantha’s* technique of retrieving the base HTML document

using the pointer and then retrieving individually the objects embedded therein, which effectively “destroys” *Mantha* as a reference.

Furthermore, even if *Mantha* were modified to incorporate the “explicit grouping” technique of *Ganger*, the combination would still fail to disclose the use of two read operations to read two Web objects, as in Claim 96, because *Mantha* would be reading the base HTML document and the embedded objects together as a group and not individually.

Alternatively, if *Ganger* were modified with the teaching of *Mantha*, in which the base HTML document and embedded objects are presumably read from the local disk in separate read operations, the principle of operation of *Ganger* would be changed because the files would no longer be treated as a group and read in a single read operation as with *Ganger*’s “explicit grouping” technique, thereby “destroying” *Ganger* as a reference.

Furthermore, even if *Ganger* were modified to incorporate the separate read operations of *Mantha*, the combination would still fail to disclose storing two Web objects in co-located positions on the disk because when treating the files separately as in *Mantha*, the individual files would not be written to co-located positions on the disk, as in Claim 96, because without writing them as a group in one write operation, the files would be written to disk in available/free locations, which would not be co-located positions on the disk.

(4) CONCLUSION OF DISCUSSION OF CLAIM 96 AND *MANTHA* AND *GANGER*

Because *Mantha* and *Ganger*, either alone or in combination, fail to disclose, teach, suggest, or in any way render obvious (a) “the server causing the first Web object to be stored as a first file in a **first location** on the storage device;” (b) “the server causing the second Web object to be stored as a second file in a **second location** on the storage device, wherein the **second location** is selected to be *co-located* with respect to the **first location** *in response to identifying that the second Web object is embedded within the first Web object*;” and “in response to the second request,” both (c) “the server obtaining the first Web object by causing the **first file to be read** from the storage device *in a first read operation*” and “the server obtaining the second Web object by causing the **second file to be read** from the storage device *in a second read operation*.” the Applicant respectfully submits that, for at least the reasons stated above, Claim 96 is allowable over the art of record and is in condition for allowance.

Furthermore, because the combination of *Mantha* and *Ganger*, or vice versa, results in a change the principle of operation of the prior art invention being modified, thereby destroying the first reference when modified by the second reference, the Applicant respectfully submits that the teachings of *Mantha* and *Ganger* cannot be properly combined in establishing that Claim 1 is *prima facie* obvious, per MPEP §2143.01.

C. CLAIMS 110, 124, AND 138

Claims 110, 124, and 138 contain features that are the same as or similar to those described above with respect to Claim 96. In particular, Claims 124 and 138 both feature (a) “the server causing the first Web object to be stored as a first file in a **first location** on the storage device;” (b) “the server causing the second Web object to be stored as a second file in a **second location** on the storage device, wherein the **second location** is selected to be *co-located* with respect to the **first location** *in response to identifying that the second Web object is embedded within the first Web object*,” and “in response to the second request,” both (c) “the server obtaining the first Web object by causing the **first file to be read** from the storage device *in a first read operation*” and “the server obtaining the second Web object by causing the **second file to be read** from the storage device *in a second read operation*,” which are the same as in Claim 96. Likewise, Claim 110 features means for performing those functions, which is similar to Claim 96. Therefore, based on at least the reasons stated above with respect to Claim 96, the Applicant respectfully submits that Claims 110, 124, and 138 are allowable over the art of record and are in condition for allowance.

D. CLAIMS 97-109, 111-123, 125-137, AND 139-141

Claims 97-109, 111-123, 125-137, and 139-141 are dependent upon Claims 96, 110, 124, and 138, respectively, and thus include each and every feature of the corresponding independent claims. Each of Claims 97-109, 111-123, 125-137, and 139-141 is therefore allowable for the reasons given above for Claims 96, 110, 124, and 138. In addition, each of Claims 97-109, 111-123, 125-137, and 139-141 introduces one or more additional limitations that independently render it patentable. However, due to the fundamental differences already identified, to expedite the positive resolution of this case a separate discussion of those limitations is not included at this time. Therefore, it is respectfully submitted that

Claims 97-109, 111-123, 125-137, and 139-141 are allowable for the reasons given above with respect to Claims 96, 110, 124, and 138.

CONCLUSION

The Applicant believes that all issues raised in the Office Action have been addressed and that allowance of the pending claims is appropriate. After entry of the amendments, further examination on the merits is respectfully requested.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

For the reasons set forth above, it is respectfully submitted that all of the pending claims are now in condition for allowance. Therefore, the issuance of a formal Notice of Allowance is believed next in order, and that action is most earnestly solicited.

To the extent necessary to make this reply timely filed, the Applicant petitions for an extension of time under 37 C.F.R. § 1.136.

If any applicable fee is missing or insufficient, throughout the pendency of this application, the Commissioner is hereby authorized to any applicable fees and to credit any overpayments to our Deposit Account No. 50-1302.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Hon. Commissioner for Patents, Mail Stop AMENDMENT, P.O. Box 1450, Alexandria, VA 22313-1450.

on July 5, 2006

by Tracy Reynolds
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